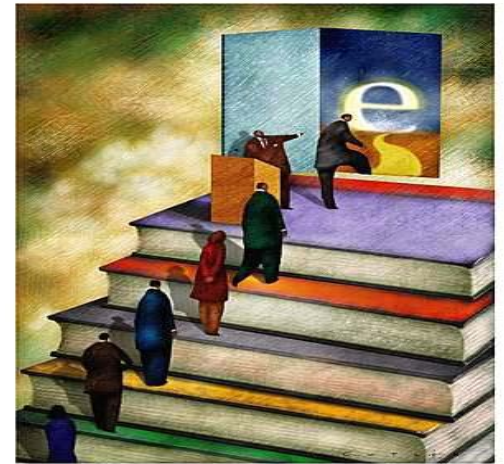





E-Books: A Handheld Revolution

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“Diffusion is a kind of social change, defined as the process by which alteration occurs in the structure and function of a social system” (Rogers, 2003,p. 58 e-Book Reader)

What is an eBook?

- **An electronic reading device:** a battery-powered portable reading device displaying text on a high-resolution screen. E-books can be updated either from a book store or a website that sells digital texts.

(<http://encarta.msn.com>)



Stage 1 Need

What problem or need existed that gave rise to the eBook innovation?

- An option for free or inexpensive books
- Portability – can carry hundreds of books in their pocket, eBook readers vary in size.
- Reasonable Prices
- Can buy chapters (parts of a content can be purchased)
- Easier to update and upgrade- especially textbooks
- Use less natural resources

Stage 2 Research

What research organization or people developed a solution to this problem or need?

What were their findings? Who were the “lead thinkers” for this innovation, and how did they convince a manufacturer to produce it?

- Gutenberg Project in 1971 by Michael Hart at the University of Illinois (Guardian.co.uk, 2002), whose goal was to establish an electronic library.
- **1987** Eastgate Systems, a company known for creating computer games, published its first hypertext fiction work: "Afternoon," a story by Michael Joyce. The book was available on floppy disk.
- **1990** John Galuskza, founder of Serendipity Systems, created an eBook display program called PC-Book. It featured numbered pages and bookmarks.
- **1993**, [BiblioBytes](#) launched a website to sell eBooks over the internet, the first company to create a financial exchange system for the net.
- **1998**, NuroMedia released the first handheld eBook reader, the Rocket, which allowed eBooks to be downloaded from a PC (Guardian.co.uk, 2002)
- **1994**, The format in which eBooks were published changed from plain text to HTML.
- Roy Hoy launched the publishing company The Fiction Works (www.fictionworks.com) specifically to produce eBooks.

Stage 2 Research Continues

- **1998**, NuroMedia released the first handheld eBook reader, the Rocket, which allowed eBooks to be downloaded from a PC via a serial cable.
- **2000**, The free software Glassbook eBook reader for PC is launched.
- **2000**, Stephen King's novel Bag of Bones is published exclusively on the net, for use with the Glassbook eBook reader. Users could download the book for \$2.50 to read on a computer or personal organizer. The eBook sold 500,000 copies in 48 hours.
- **2000**, Microsoft launched its first eBook reader software called Microsoft Reader; it can be used on a PC, eBook reader or PDA.

Microsoft and Amazon joined forces to sell eBooks

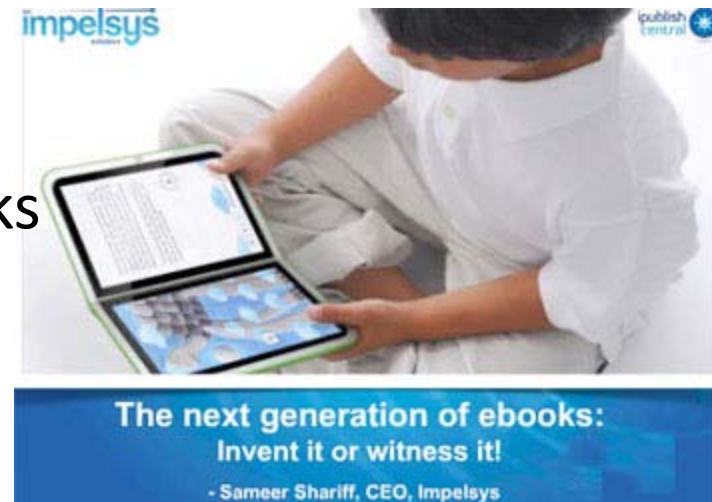
- **2009**, Amazon recruited seven colleges to participate in a diffusion study
- **2009**, An eBook-based Braille Reader is currently under development by the National Institute of Standards and Technology (NIST).
- **2009**, Sony links with libraries can borrow eBooks from libraries
- 2009, Kindle 2 released
- (<http://www.guardian.co.uk/books/2002/jan/03/ebooks.technology>)

Stage 3 Development

What problems did your innovation encounter in the development process?

Who was the intended audience for your innovation?

- Intended audience: publishers, authors, and readers.
- Problems:
 - Book pages hard to follow (do not reflect paperbacks' numbers)
 - Small screen
 - Increase in functionality (bookmarking, ability to scroll up and down)
 - Publishers to create more eBooks
 - Hackers (Protecting authors copyrights)



Stage 4 Commercialization

Describe the production, manufacturing, packaging, marketing, and distribution of your innovation.

- The Frankfurt Book Fair has established seven annual awards for eBooks, including a grand prize of \$100,000.
- Some eBook formats are perfectly suited for reading by the vision impaired.
- Physical portability
- eBooks are available anywhere you can gain access to the Internet
- An average eBook is usually less than 500Kb and even small reading devices have at least 2Mb of storage (4+ books).
- Many devices have 8Mb or 16Mb and some allow the use of extra memory in the form of Compact Flash that can go as high as 128Mb (256+ books).

Innovators

- ❖ Have ability to understand and apply complex technical knowledge as needed.
- ❖ Can cope with high degree of uncertainty.
- ❖ Play a gatekeeper role in the flow of new ideas

Rogers, E. M. (2003). Diffusion of Innovations [Sony e-book Reader]. Retrieved from ebookstore.sony.com



1990 – Sony Discman Sony Discman played audio and data CDs in a proprietary eBook format

eBook innovators:



- 1945- Vannevar Bush describes the memex, a device in which an individual stores all his books, records and communications
- 1967- Andries van Dam and a team from Brown University develops a method for text to be stored and retrieved on computers.
- 1971- Project Gutenberg, first producer of free electronic books (ebooks) by Michael Hart.
- 1987 - First Digital eBook, using Storyspace software .
- 1990 – Sony Discman Sony Discman played audio and data CDs in a proprietary eBook format
- 2009- Canadian high schools – Blyth Academy is the first school to switch from paper textbooks to exclusive use of the Sony Reader Touch edition. <http://www.sonyinsider.com/2009/11/17/canadian-high-school-to-use-sony-reader-exclusively/>

5 Characteristics that Influence Diffusion Rate

❖ **Relative advantage:**

1. The use of social networks cuts on book costs.
2. Learning outside the classroom; the learning experience is not confined to a particular location and the educational material can be extended.
3. Time is not a factor; students can review and learn at their convenience.
4. Missed class; allows making up for a missed class.
5. Learners can download free eBooks.

❖ **Compatibility:**

1. Learners are familiar with the tool, because they use same technological tools for other social engagements.
2. No need for special applications and it is compatible with any widely used platform.

5 Characteristics that Influence Diffusion Rate

❖ Trialability:

1. Students can select and test different online tutorials in order to enhance education, according to the class topic .
2. Learners can take advantage of some YouTube tutorial, posted as an advertisement for an eBook, to sample tutorial.
3. As students can try out tutorials available on YouTube; there is less uncertainty and a comfort factor becomes present.

❖ Complexity:

1. Need to have access to the Internet.
2. Educators have to research different tutorials (which is time consuming).
3. Selected tutorial might be too complex for the student.

❖ Observability:

The use of social networks as part of educational experience can receive recognition if educators will observe the benefits reflected in student work. The easy and the straightforwardness of the learning experience can generate adoptability of eBooks as part of class experience. When other educators see eBooks being used, it will generate discussion and interest in pedagogues which will integrate social networks as part of a class experience. Consequently, discussion and interest also lead to adaptation of the tool.

Early Adopters

- ❖ Integrated part of the local system
- ❖ Local users
- ❖ Agents of change in local communities
- ❖ Role models

Rogers, E. M. (2003). Diffusion of Innovations [Sony e-book Reader]. Retrieved from ebookstore.sony.com

“The study found that for institutions that were early adopters of eBooks, users accessed eBooks with 50 to 100 percent of the frequency with which they accessed online journals. And in the first year of Springer’s eBooks program, eBook usage accounted for roughly a fourth of total usage on the SpringerLink website with approximately 25 million chapter downloads.”

http://www.springer.com/cda/content/document/cda_downloaddocument/eBooks+-+the+End+User+Experience?SGWID=0-0-45-608298-0

Early Majority

- ❖ Interact frequently with peers
- ❖ Interconnect in the interpersonal networks.
- ❖ Deliberate before adopting.



Early Adopters Evaluation of eBook Advantages and Disadvantages

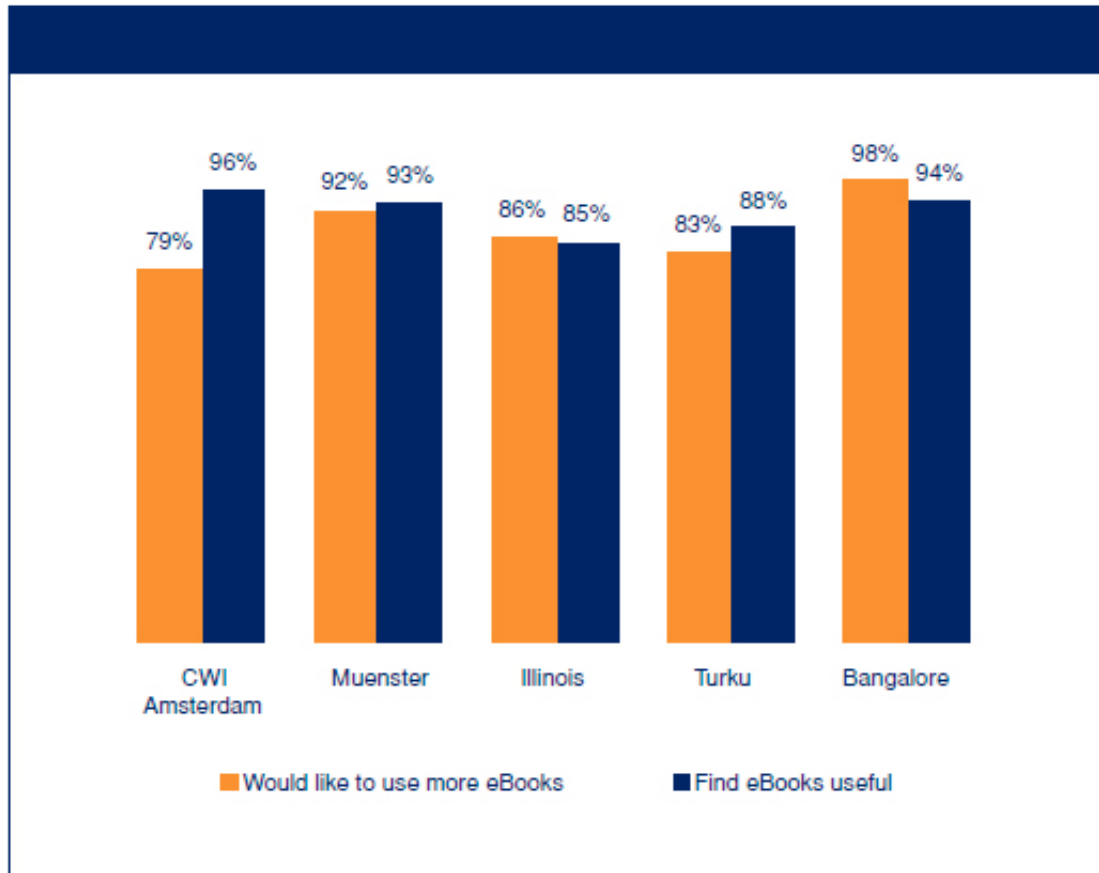
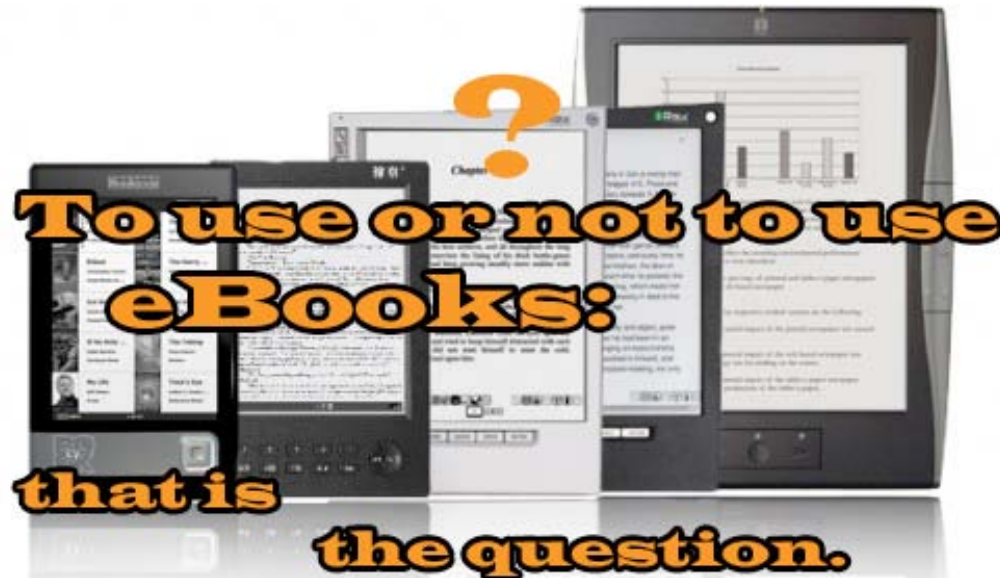


Figure 4: The vast majority of users surveyed find eBooks useful and would like to use more of them.

http://www.springer.com/cda/content/document/cda_downloaddocument/eBooks+-the+End+User+Experience?SGWID=0-0-45-608298-0

Late Majority

- ❖ Adopt new ideas late
- ❖ Make up one third of members in the system
- ❖ Adopt for economical and peer pressure reasons



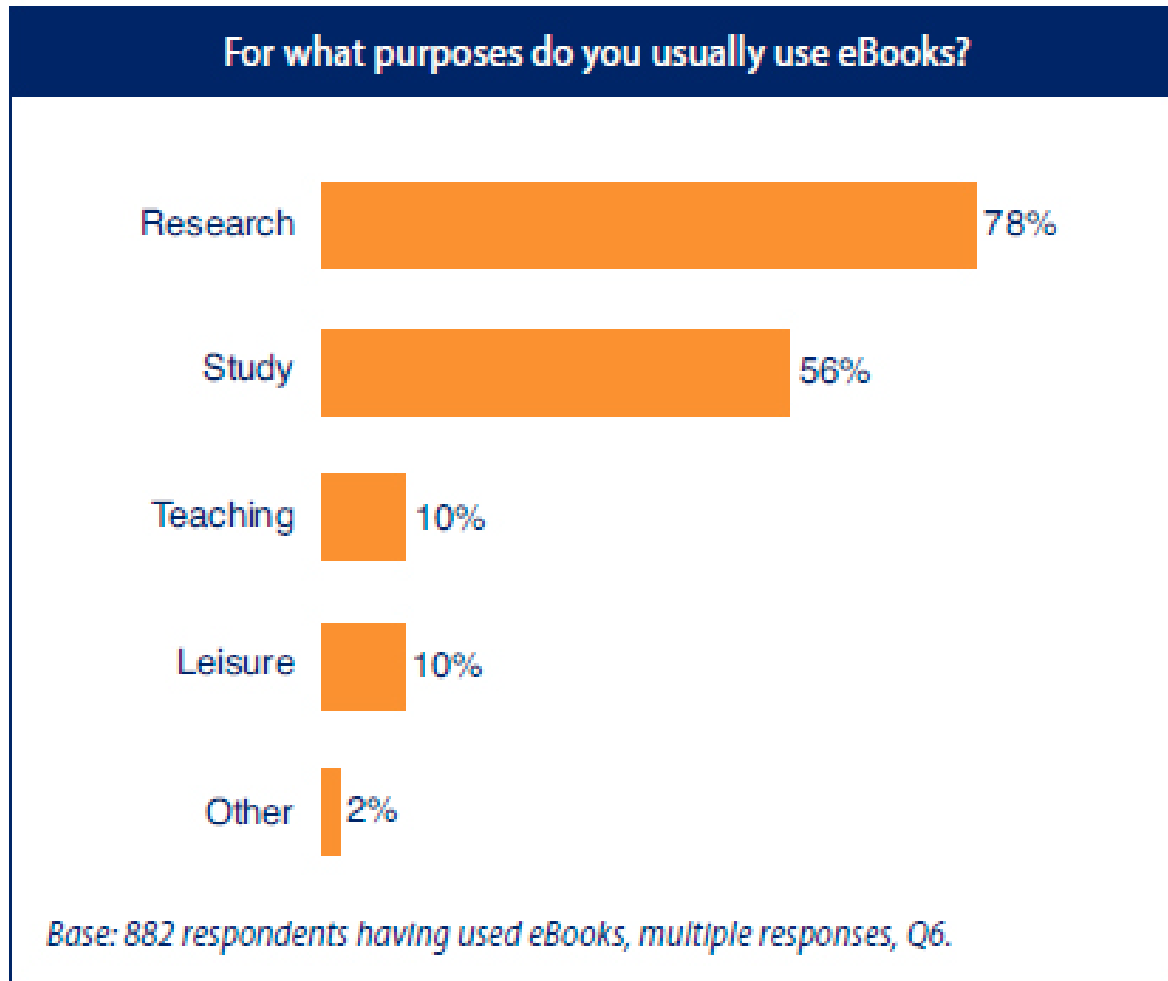
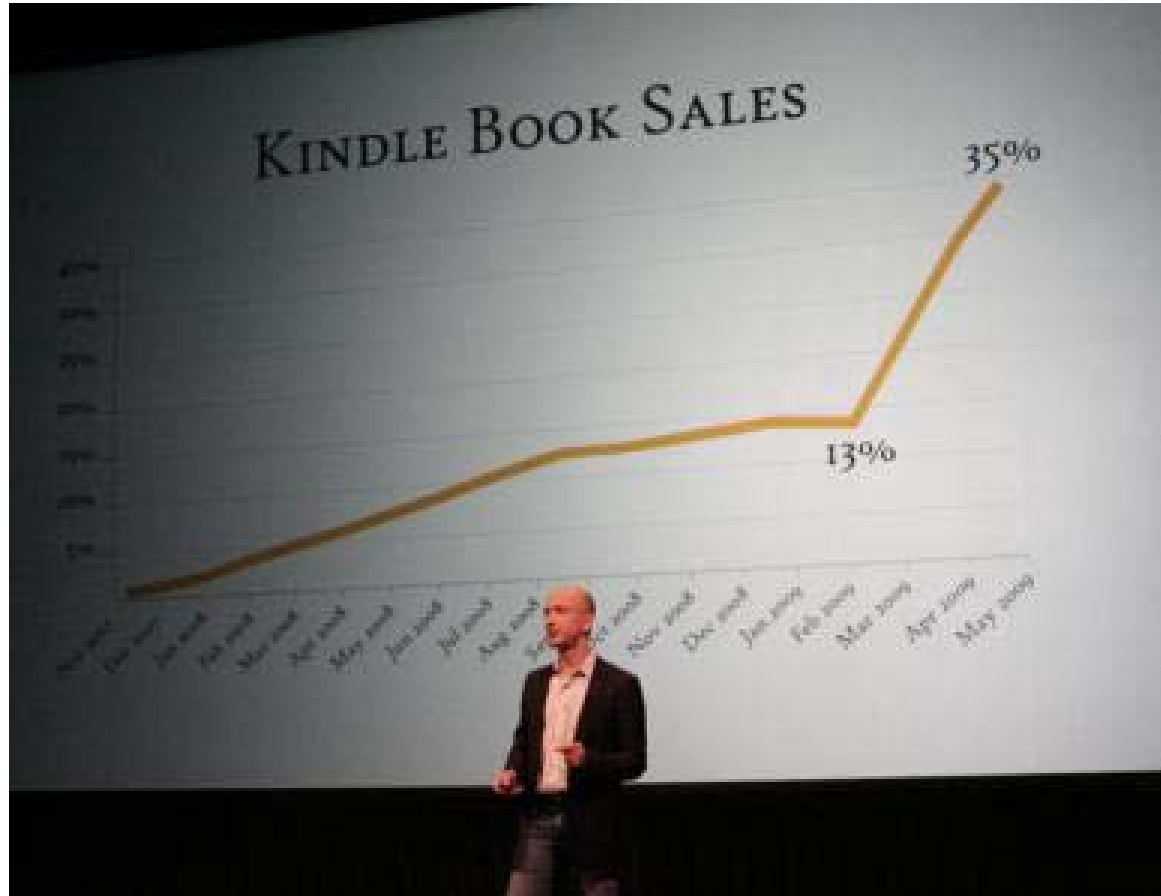


Figure 2: At the University of Illinois at Urbana-Champaign, most users said they use eBooks primarily for research and study, with teaching and leisure trailing far behind.

http://www.springer.com/cda/content/document/cda_downloaddocument/eBooks+-+the+End+User+Experience?SGWID=0-0-45-608298-0

Critical Mass



Critical mass “occurs at the point at which enough individuals in a system have adopted an innovation so that the innovation’s further rate of adoption becomes self-sustaining” (Rogers, 2003, p. 344)

eBooks HIT CRITICAL MASS

Oprah's enthusiasm for the Amazon Kindle has built an awareness of the availability of eBooks. The number of titles has reached critical mass, and reader hardware has become more attractive.

<http://www.allbusiness.com/media-telecommunications/publishing-electronic-publishing/12346676-1.html>

What do you expect to happen with eBooks in 5 years time?

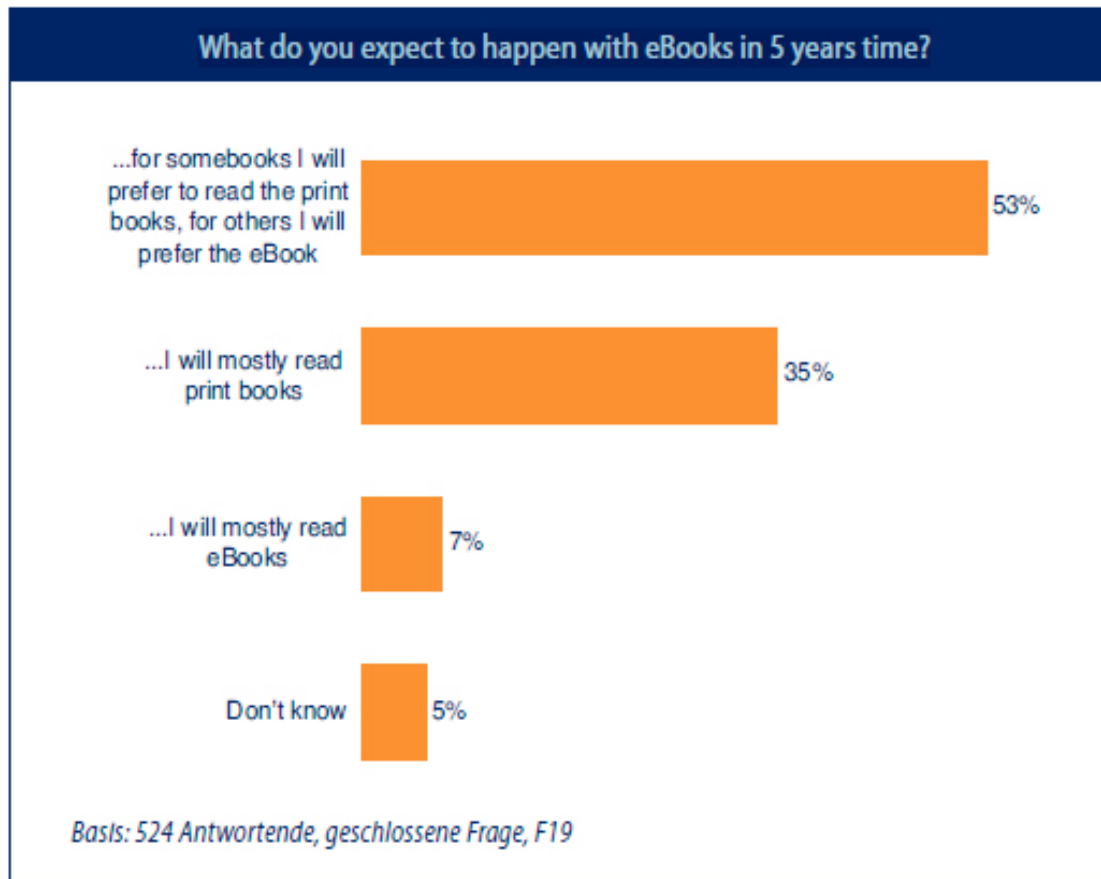
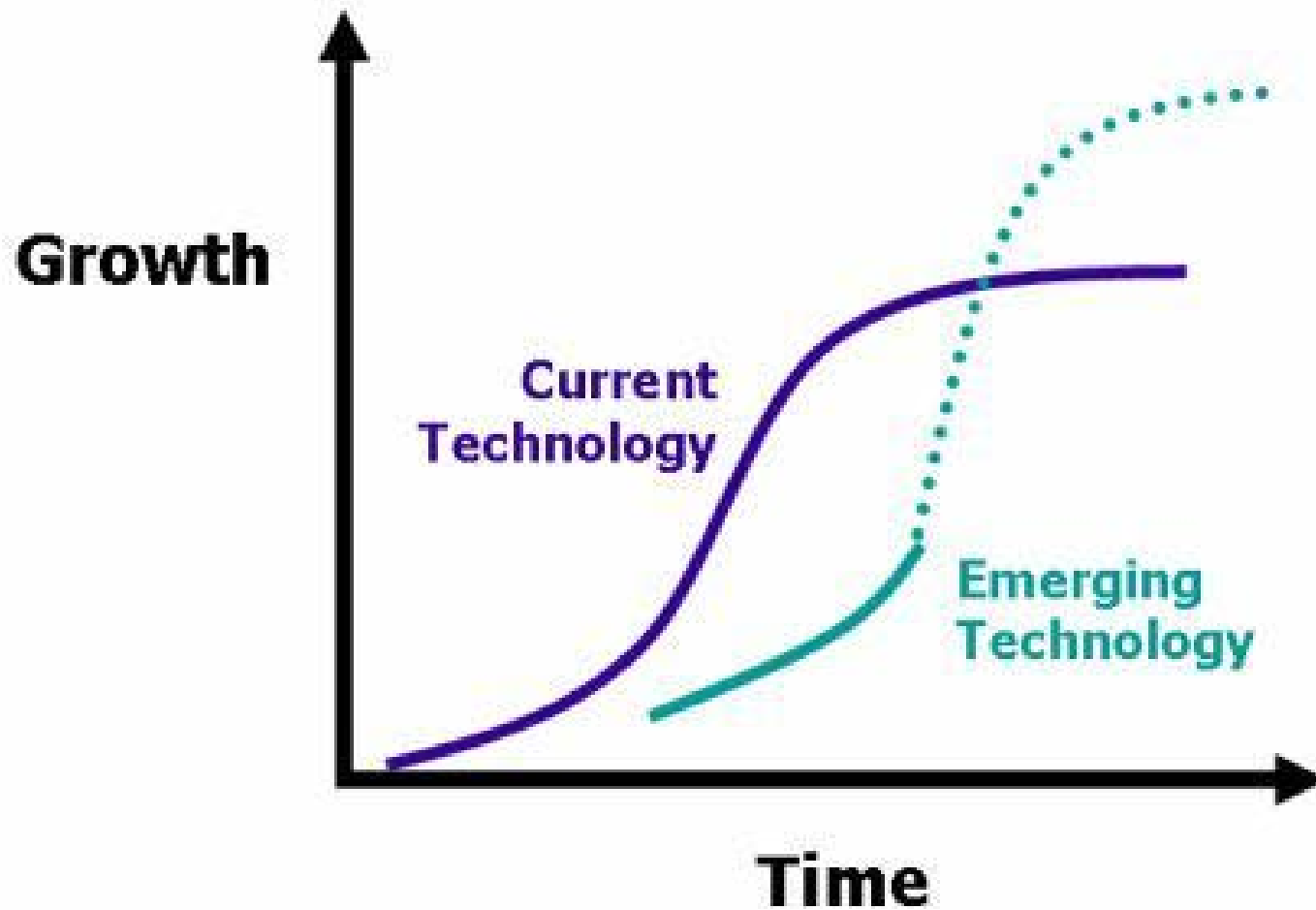


Figure 5: Most users at the University of Muenster expect that in five years, they will prefer print for some books and eBooks for others.

http://www.springer.com/cda/content/document/cda_downloaddocument/eBooks+-+the+End+User+Experience?SGWID=0-0-45-608298-0

Innovation Life Cycle



Adoption Rate of E-books

- Adopter Categories

– Innovators	2.5%
– Early Adopters	13.5%
– Early Majority	34.0%
– Late Majority	34.0%
– Laggards	16.0%

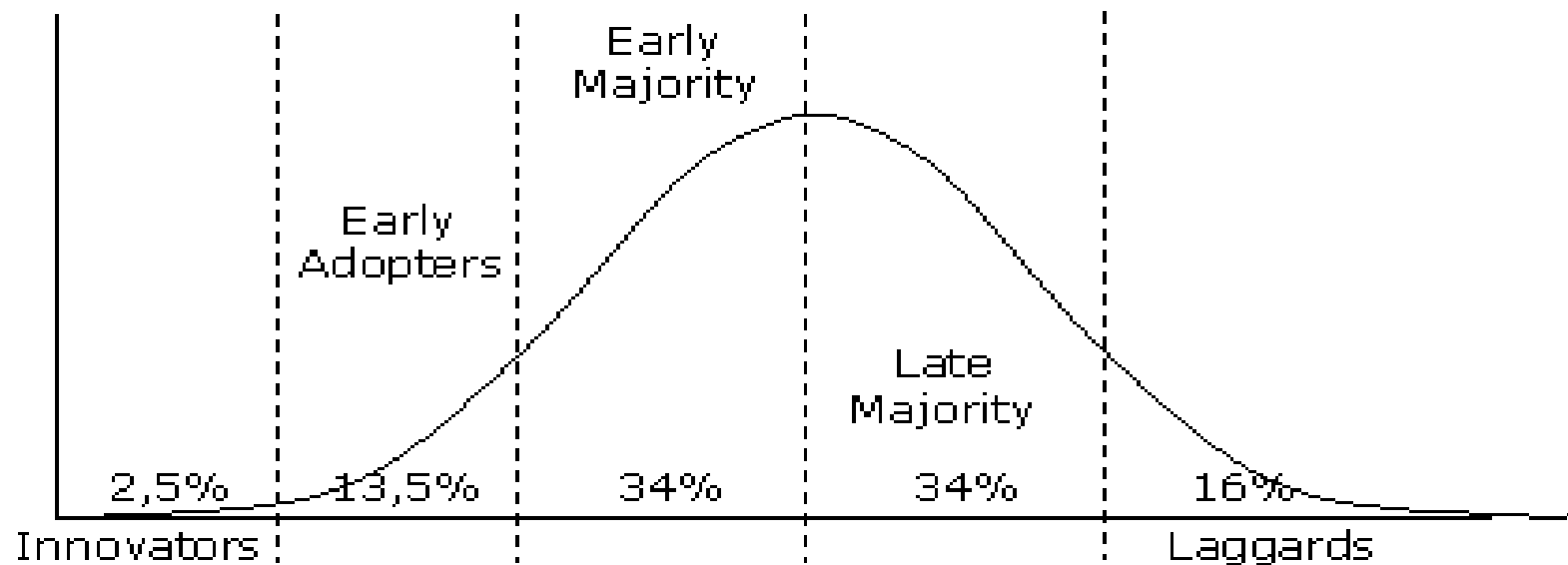
- Reference:

Walton, E. W. (2007, March 30). *Faculty and Student Perceptions of Using E-books in a Small Academic Institution*. Retrieved January 20, 2010, from Presented Paper ACRL 13th National Conference:
http://74.125.113.132/search?q=cache:Ghvqwv7vhTIJ:www.eshow2000.com/acrl/2007/handouts/735_CPWalton_Edward_W._093858_022807113049.ppt+Late+Majority+adopters+users+of+ebook&cd=7&hl=en&ct=clnk&gl=us&client=firefox-a

Adoption Rate

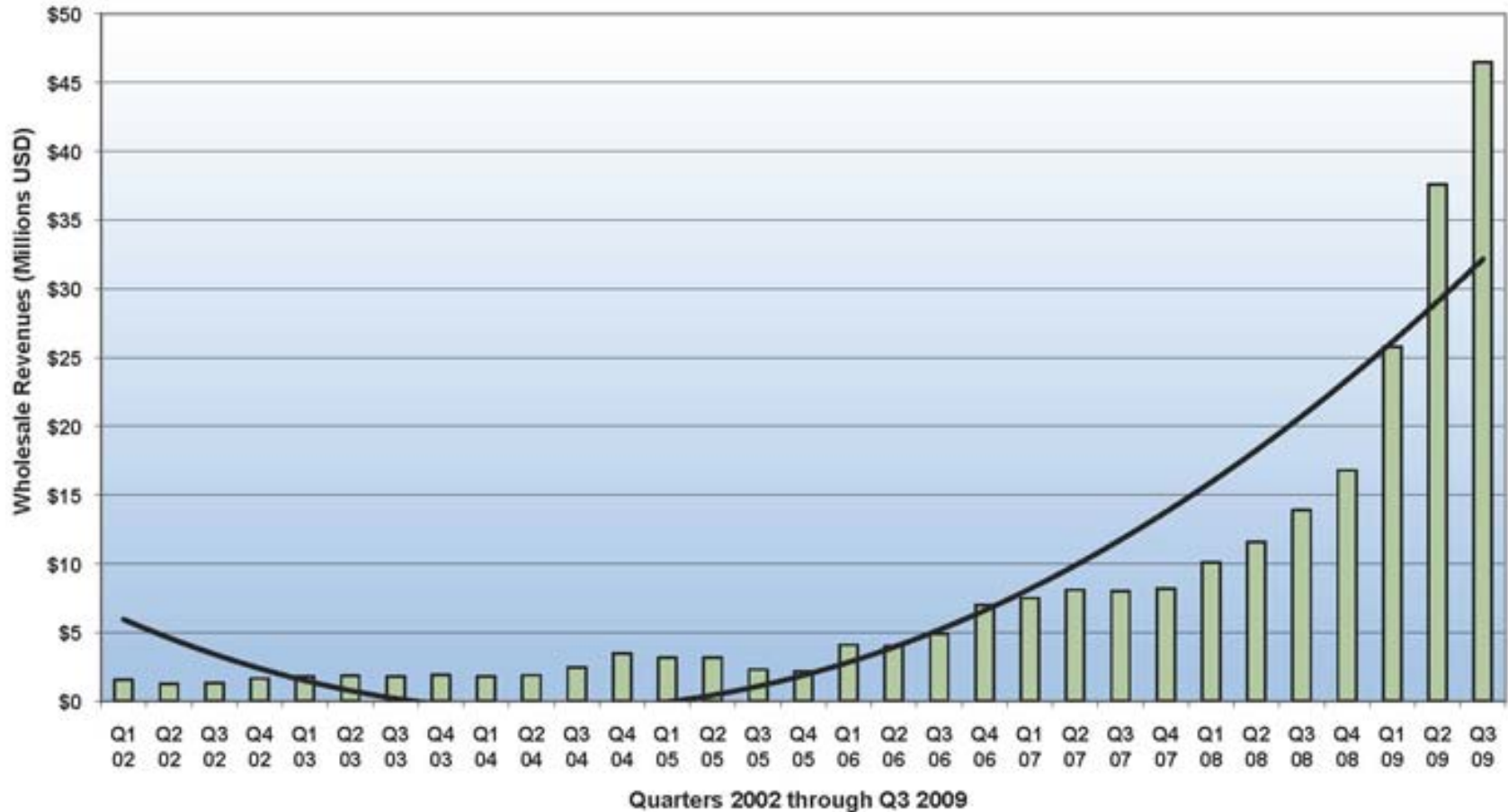
www.valuebasedmanagement.net

Rogers Adoption / Innovation Curve



e-Book Sales Statistics

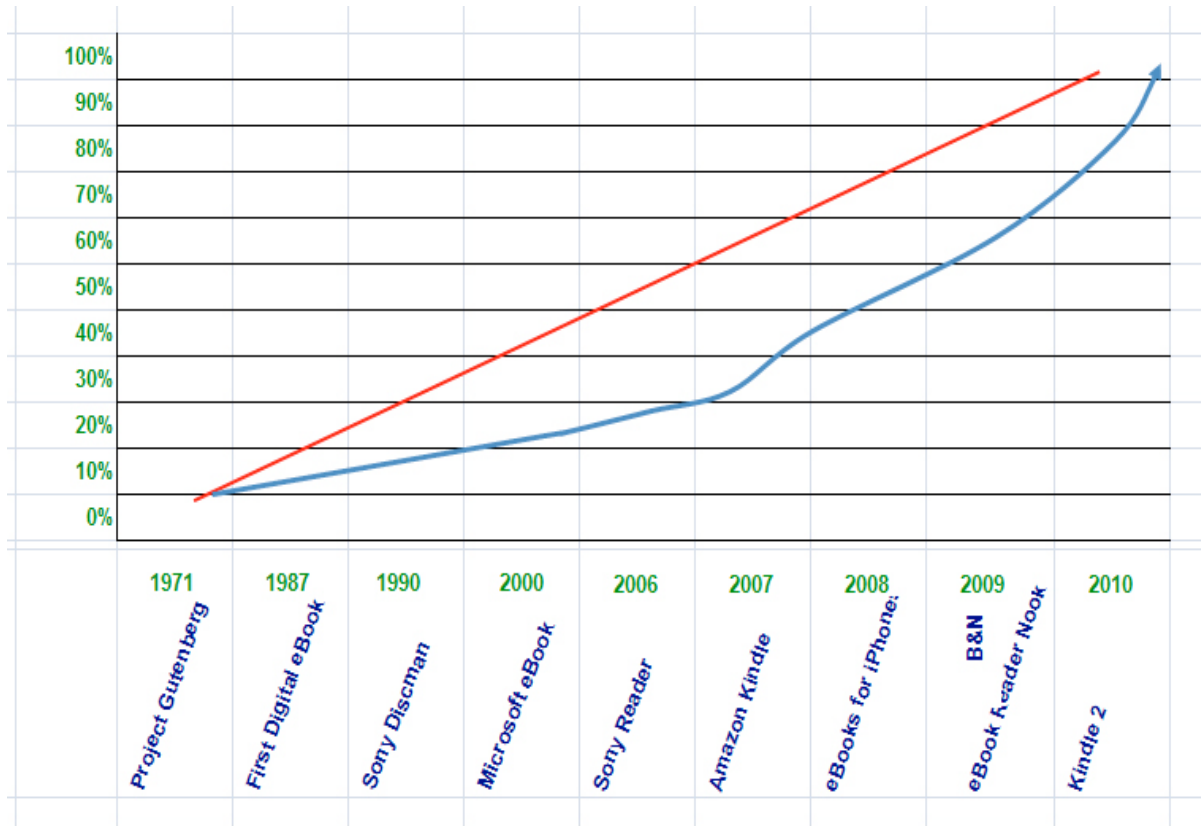
US Trade Wholesale Electronic Book Sales



http://www.idpf.org/doc_library/industrystats.htm

The S-Shaped Curve of Adoption

market
share
(blue)



“The S-shaped adopter distribution rises slowly at first when there are few adopters in each period. It then accelerates to a maximum until half of the individuals in the system have adopted. Then the S-curve increases at a gradually slower rate as fewer and fewer remaining individual adopt the innovation”
(Rogers, 2003, p.272)

- Public presentation at Ontario Libraries Association conference, January 2009.
The University of Toronto Libraries eBooks study findings from 2008 user experience study
<http://www.slideshare.net/peterjones/ola-ebooks-presentation>
- Based on: http://www.idpf.org/doc_library/industrystats.htm

eBook Publishers:

- There are now over 70 eBook Publishers
- Biggest and best known are:
 - iUniverse.com
 - Barnes & Noble.com
 - Amazon.com
 - Contentville
 - CyberRead
 - netLibrary
 - On-line Books
 - Peanut Press

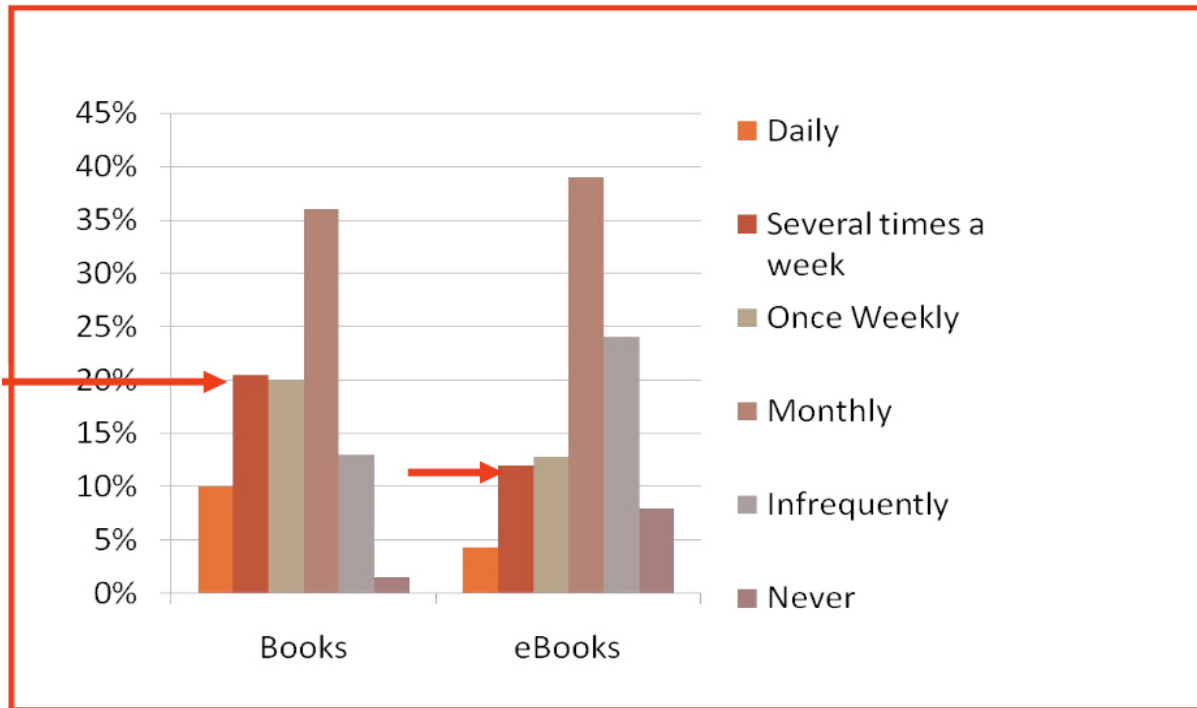


eBook Publishers:

- The e-textbooks typically cost at least 80 percent of the print price.
- Educators and publishers are catching on to student demand for e-textbooks with expanded features, said David Bousfield, vice president and lead analyst for the publishing and information-research company Outsell. He said students wanted to move away from the linear style of print textbooks and have access to information quickly.
- "People don't read textbooks from Page 1 to the last page," Mr. Bousfield said. "They tend to read backward and forward. It's characteristic of the learning process."
- Mr. Behan said many students toward the end of their college careers still preferred the look of a printed textbook for a digital version. But younger college students are showing more interest in nontraditional versions of their course material.

Books vs eBooks

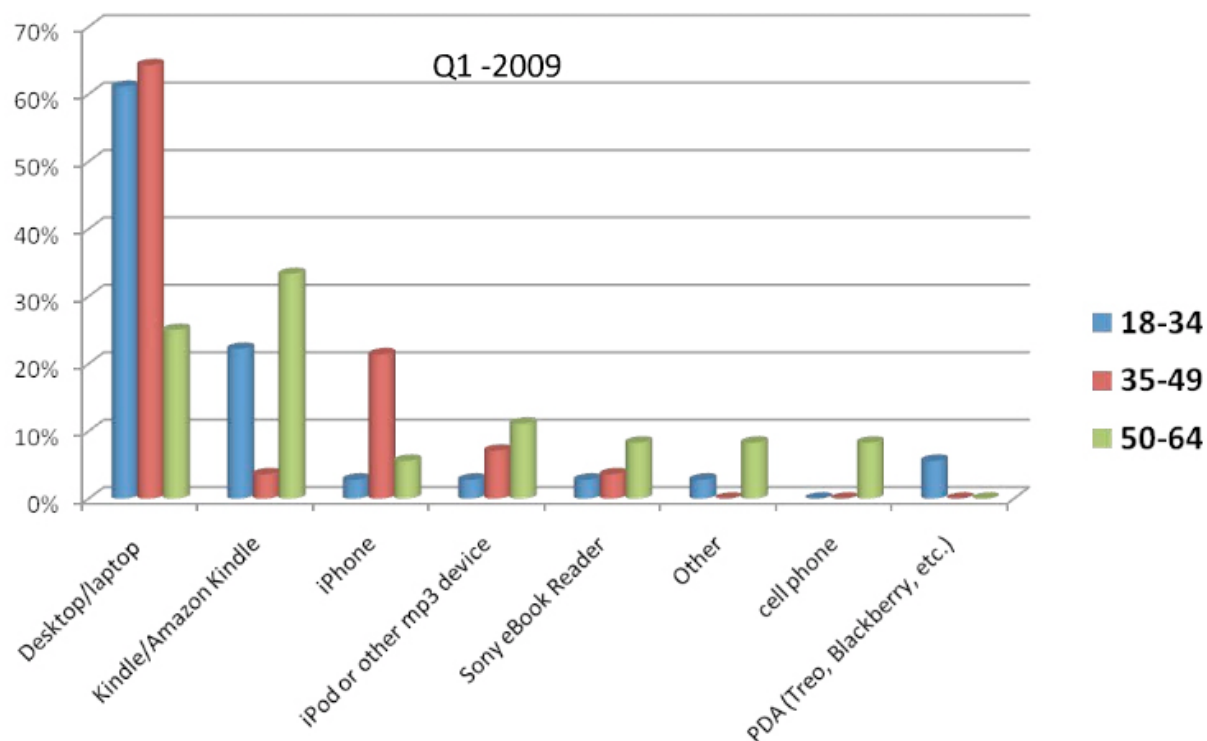
Books used ~twice eBooks



Public presentation at Ontario Libraries Association conference, January 2009. The University of Toronto Libraries eBooks study findings from 2008 user experience study <http://www.slideshare.net/peterjones/ola-ebooks-presentation>

Who Buys What? Digitally

Matures are leading the way in adopting the Kindle...
Middle-aged for iPhone as preferred e-Book readers



The Next Generation Of Ebooks

Email Favorite More...

impelsys

www.ipublishcentral.com

ipublish
central



Book glutton

New
Mobile!

Add & share notes

Chat

Read

Highlight text

Comment /
respond

Scarcely giving me time to finish, my uncle snatched the document from my hands and examined it with the most rapt and deep attention.

"I should like to know what it means," he said, after a long period.

I certainly could not tell him, nor did he expect me to—his conversation being uniformly answered by himself.

"I declare it puts me in mind of a cryptograph," he cried, "unless, indeed, the letters have been written without any real meaning; and yet why take so much trouble? Who knows but I may be on the verge of a great discovery?"

My candid opinion was that it was nonsense; but this opinion I kept carefully to myself, as it was not pleasant to bear. At this time he was turning over the book with the parchment.

"The manuscript volume and the smaller document are written in different hands," he said. "The cryptograph is of much later date than the book; there is an undoubted proof of the correctness of my surmise. [An unfragable proof I took it to be.] The first letter is a double M, which was only added to the Jewish language in the tenth century; this makes the parchment two hundred years old."



The Next Generation Of Ebooks

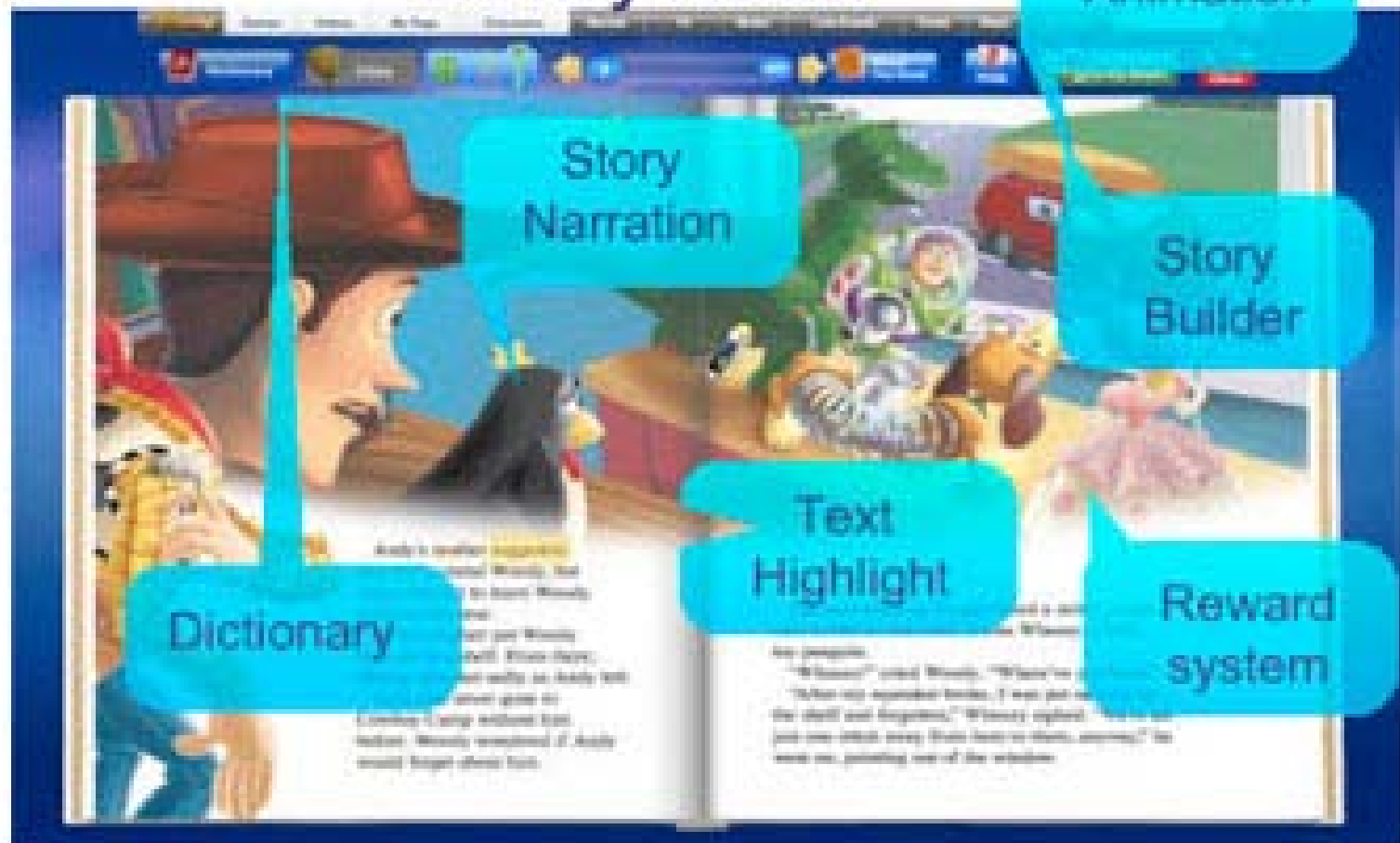
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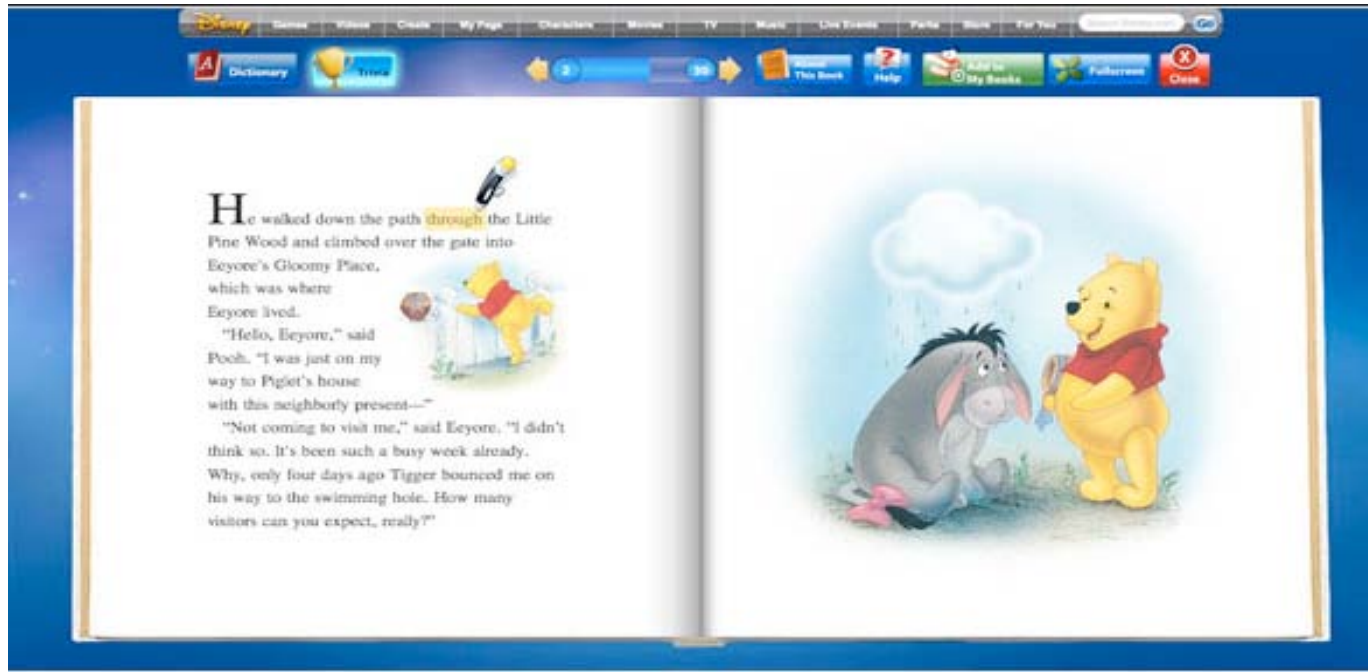
www.publishcentral.com

publish
central

Disney reader



Disney Digital Books



Although an online e-book portal for children is not a physical eBook, a subscription provides access to more than 500 titles from Disney. Readers can select books based on individual reading levels, including picture and chapter books.

From: <http://disneydigitalbooks.go.com/>

Apple iPad Touch Tablet Computer/eBook Reader

Revealed: Wednesday January 27th 2010



New eBook reader?

With Its tablet, Apple blurs the line between devices.

Conclusion

- **Nook:** “billed as the first Android-powered e-book reader, features not only a 6-inch E-ink screen but a color touch screen that allows you to navigate content and also can turn into a virtual keyboard for searches.”
http://news.cnet.com/8301-17938_105-10379125-1.html
- **Sony announces two new Readers and drops eBook pricing**

“Sony is also committed to working with local libraries throughout the country as they make the move to digital books. Sony Readers are compatible with the industry-standard formats that libraries use for their digital collections, so consumers can easily download perennial favorites and new releases from their local libraries and enjoy them for free” <http://www.dcvviews.com/press/sony-reader.htm>
- **Amazon claims sales of e-books surpassed sales of physical books**

"Amazon's Kindle Reader cuts book shipping: Book sales in the United States surged during the holiday season, but in a dramatic shift for the shipping world, retailer Amazon.com said this week sales of e-books for the first time surpassed sales of physical books," *Journal of Commerce*, December 2009 ---
<http://joc.com/print/415491>

Conclusion Continues

The potential use of eBooks in education is growing as it gives the students an option for free or inexpensive books.

EBooks give instructors and students the option to carry with them a library in their pocket with articles, books, writing and reference material which are instantly available.

The instructor can add comments to writings or chapters in a book and have the student save the comments.

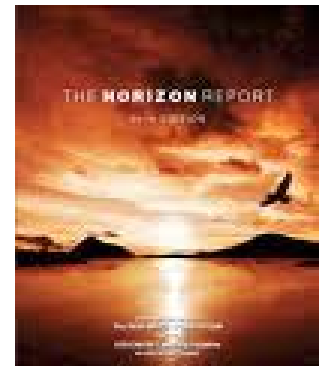
The electronic book is still in the developmental process and hopefully, a common format can be developed for all eBook devices. As eBook devices continue to improve their ability, more students and instructors will adopt the product.

Horizon Report 2010 Edition

“Electronic books have been available in some form for nearly four decades, but the past twelve months have seen a dramatic upswing in their acceptance and use. Convenient and capable electronic reading devices combine the activities of acquiring, storing, reading, and annotating digital books, making it very easy to collect and carry hundreds of volumes in a space smaller than a single paperback book. Already in the mainstream of consumer use, electronic books are appearing on campuses with increasing frequency. Thanks to a number of pilot programs, much is already known about student preferences with regards to the various platforms available. Electronic books promise to reduce costs, save students from carrying pounds of textbooks, and contribute to the environmental efforts of paper conscious campuses” (p.6 para 3)

Reference:

Horizon Report , (2010, January). *Horizon Report 2010 Edition*. Retrieved January 27, 2010, from The New Media Consortium and the EDUCAUSE Learning Initiative:
<http://www.nmc.org/pdf/2010-Horizon-Report.pdf>



Reference

- Bellaver, R. F., Gillette, J., (2001). *The Usability of eBook Technology: Practical Issues of an Application of Electronic Textbooks in a Learning Environment*. Retrieved December 15, 2009, from UPA - The Usability Professionals' Association: http://www.usabilityprofessionals.org/upa_publications/upa_voice/volumes/5/issue_1/ebooks.htm
- Guardian.co.uk, (2002, January 3). *Ebook timeline Books*. Retrieved December 15, 2009, from guardian.co.uk: <http://www.guardian.co.uk/books/2002/jan/03/ebooks.technology>
- JISC, (nd). *Business Models*. Retrieved January 26, 2010, from JISC national e-Books observatory project: <http://www.jiscebooksproject.org/business-models>
- Kolakowski, N. (2009, December 1). Amazon Will Sell 550,000 Kindle E-Readers in 2009, Says Analyst. *eWEEK.com*, Retrieved December 15, 2009, from <http://www.eweek.com/c/a/Mobile-and-Wireless/Amazon-Will-Sell-550000-Kindle-EReaders-in-2009-Says-Analyst-623633/>
- Papanek Stork, P. (2009). *The Promise of eBook Publishing*. Retrieved January 1, 2009, from The Writers Write: <http://www.writerswrite.com/journal/oct00/stork.htm>
- Rogers, E. M. (2003). *Diffusion of Innovations* [Sony e-book Reader]. Retrieved from ebookstore.sony.com
- Springer Report , (2008, October 8). *Ebooks Usage Trends And Statistics - The Springer Report 2008*. Retrieved January 18, 2010, from : http://www.masternewmedia.org/ebooks_usage_trends_and_statistics/
- Young, J. R. (2009, September 7). This Could Be the Year of E-Textbooks, if Students Accept Them. *The Chronicle of Higher Education*, Retrieved December 15, 2009, from <http://chronicle.texterity.com/chronicle/20090911a/?pg=1http://www.taranfx.com/tag/ebooks>